

XNET Network Box Camera

User's Guide

Ver. 1.0 (070918)



Directions

This product is designed for indoor use only. When using this camera at outdoors or in an environment that exceeds the limited range, you must separately use a water-resistant case.

Be careful not to cause any physical damage by dropping or throwing the unit. Especially keep the device out of reach from children.

Do not disassemble this camera. You will be excluded from After Service when disassembled.

Use only the power adapter provided with this product.

If you would like to use this camera for security, monitoring, please check the legal regulations within the country.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into and outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Caution

Any changes or modifications in construction of this device which are not explicitly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This appliance and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

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1. Introduction

1.1. Overview

The XNET is a state-of-the-art network camera which transmits synchronized video and audio data in real time with **D1 resolution at full frame rate**. This is possible through MPEG4 CODEC technology, which provides high quality video with highly compressed data streams. This products can be connected, controlled and monitored from a remote location through an IP connection over internet or intranet. Unlike other CCTVs or DVRs, the XNET is easy to install and user will experience cost and space savings in the installation.

Based on Embedded Software Solution (Embedded Web Server, Embedded Streaming Server, Network Protocol), the XNET ensures unprecedented performance and stability to be an ideal network camera solution for system integration solutions.

The wired XNET series is offered with standard Ethernet interface while the wireless XNET series is offered with embedded WiFi solution.

1.2. Features of XNET

- 1 channel synchronized real time Video/Audio streaming
MPEG-4 video, ADPCM audio.
- Bi-directional audio communication
Real time audio communication between the product and the client PC
- The viewer assisted **recording and playback functions**.
- 1 Alarm sensor input/1 relay output
- Motion detection – Up to 3 motion detection zones
- Arbitrary shape motion detection zone
- Motion detection can initiate video recording, which is sent to the user through FTP and/or E-mail.
- Resolution
NTSC : 720x480, 352x240, 176x144.
PAL/SECAM : 720x576, 352x288, 176x144
- RS-485 interface for Pan/Tilt device connection
- Remote administration control
Entire operational parameter set up, Software upgrade
- Embedded WiFi interface (**XNET-Wireless only**) – **IEEE 802.11b/g**
- Proprietary PoE (Power over Ethernet) for convenience of installation and cost savings

1.3. Applications of XNET/XNET-Wireless

- Security surveillance (buildings, stores, manufacturing facilities, parking lots, banks,

government facilities, military, etc.)

- Real time Internet broadcasting
- Remote monitoring (hospitals, kindergartens, traffic, public areas, etc.)
- Teleconference (Bi-directional audio conference)
- Remote Learning
- Weather and environmental observation

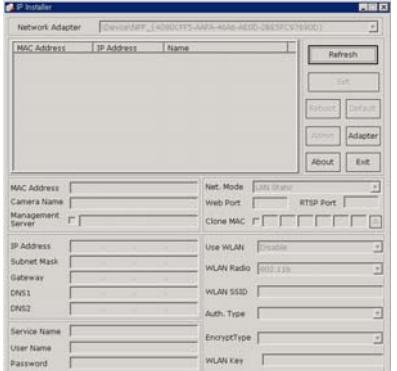
2. Product Description

2.1. Contents

Open the package and check if you have the followings:

Components	Description	Remarks
XNET/XNET-Wireless	XNET/XNET-Wireless Network Camera	
Power adapter	Input : 100~250V 50-60Hz Output : +12V, 3.33A	Standard Power
AC power cable	AC 250V, 10A~16A	
Antenna		XNET-Wireless only
CD-ROM	Software & User's Guide	
Quick Reference Guide	Quick installation guide	Will be provided

2.2. Preview

XNET/XNET-Wireless	IP-Installer	XNET-NVR
<p>Wired LAN Type</p>  <p>Wireless LAN Type</p> 		 
<p>MPEG-4 Network Camera</p>	<p>PC software to allocate an IP address to the XNET</p>	<p>PC software to view and record the A/V streaming data transmitted from the XNET.</p> <p>There are two editions available (NVR/XNVR).</p>

2.3. Physical Description

2.3.1. Side View



Figure 2-1. Side view of IG Series (Wired LAN)



Figure 2-2. Side view of WG Series (Wireless LAN)

- **Lens:** XNET/XNET-Wireless basically delivered without Lens assembly. Standard C or CS type lens can be accommodated into XNET/XNET-Wireless. Either DC Iris lens or Non-DC Iris lens can be used with XNET/XNET-Wireless.
- **Auto-Iris Control:** Plug in the cable from standard DC-Iris lens.
- **Antenna:** This antenna is used only for the XNET-Wireless cameras(WG Series) to transmit images via wireless network.

2.3.2. Rear panel

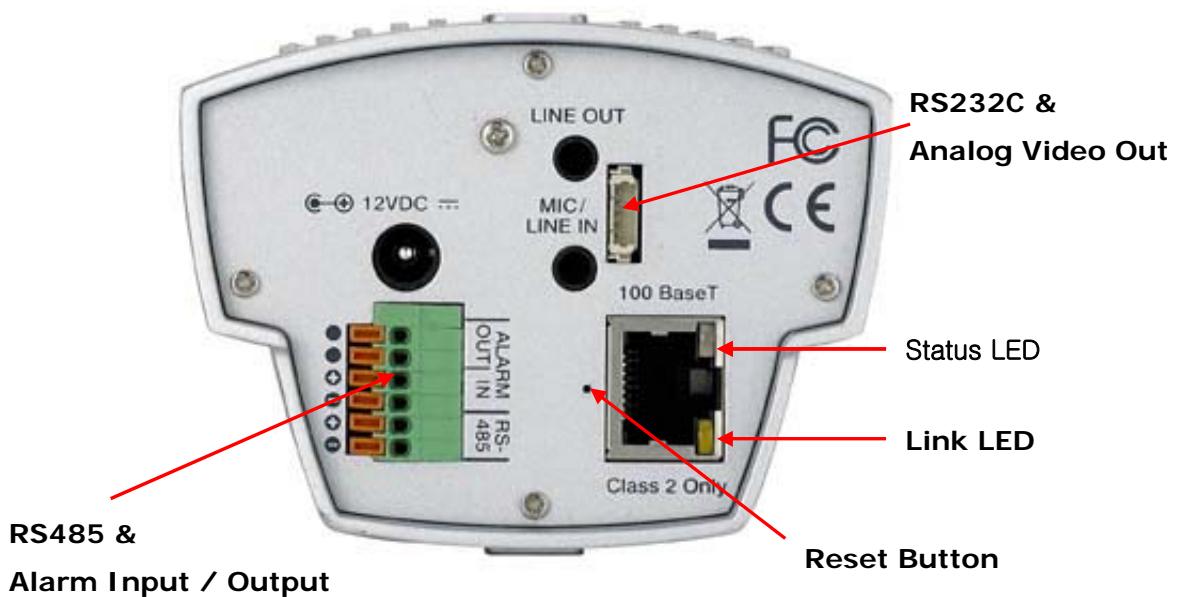


Figure 2-3. Rear Views of XNET/XNET-Wireless

- **MIC /LINE IN:** Connect external audio source or microphone. Use a standard stereo earphone jack for the connection



Figure 2-4. Pin assignment of the plug for MIC / LINE IN (left) and LINE OUT (right)

- **LINE OUT:** Connect speakers with built in amplifier. Audio from remote site is output through Line out in bi-directional audio mode. Use the standard stereo earphone jack for the connection.

• **Reset Button: Factory Default Switch**

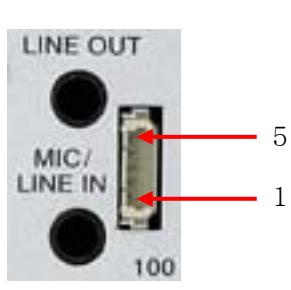
There is a switch provided for returning the network camera to factory default state. Press the switch about 3 seconds through a tiny hole at the left of the 100BaseT connector using tools with sharp tip for a few seconds while power is applied.

- **100BaseT:** 100Mbps Ethernet connector (RJ-45) with proprietary PoE.
- **Status LED:** Green color indicates that the camera is in normal operation mode, while red color indicates that the camera is in abnormal condition.



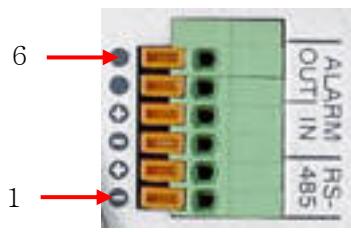
When connecting a power source to the XNET, the status LED will be lit red for a second and then it will change to green.

- **Link LED:** Continuous yellow light means that network cable is plugged in. It will flicker when there is traffic.
- **RS-232C & Video-out:** 3 Pins from the bottom of the connector are assigned for RS-232 port, while the remaining 2 pins are used for checking composite video output from the camera. Please note that the bottom most pin is numbered as 1.



Pin	Description	Misc.
1	TxD of RS-232C	For debugging & factory use only.
2	RxD of RS-232C	
3	Ground of RS-232C	
4	Video out from the camera	For use in installation.
5	Ground for Video out.	For use in installation

- **12VDC:** Power input of XNET/XNET-Wireless.
Do not apply power through this power input when power is applied through LAN cable using proprietary PoE.
- **RS-485 and ALARM IN/OUT:** Used for connecting P/T device, sensor, and alarm devices to XNET/XNET-Wireless. Pin assignments are as follows



Pin	Description	Misc.
1	RS-485 (-)	
2	RS-485 (+)	
3	Alarm In (-)	NC/NO selectable in admin mode.
4	Alarm In (+)	
5	Alarm Out	See section "6.1. ALARM-IN and ALARM-OUT"
6	Alarm Out	

- **RS-485:** Used for connecting Pan/Tilt and Zoom devices having RS-485 interface standard.
- **Alarm In:** Connect external alarm sensors such as the infrared sensors, heat sensor, magnetic sensors, etc. NC/NO selectable in the admin page.
- **Alarm Out:** It is used for connecting external alarm generators such as sirens, flashing light, etc. When activated, relay output configures a closed circuit.

Please refer to Section 6.1 for more detailed description on the Alarm In/Out connections.

- **Antenna Connector:** Connector for connecting 3dBi antenna supplied with XNET-Wireless

2.4. PC Requirements

AV streaming data received from XNET/XNET-Wireless can be decoded or stored in a PC running XNET-NVR program which is a viewing & recording program for a PC. Minimum requirement of the PC is described below:

Item	Minimum	Recommended
CPU	Pentium III 700	Pentium IV 1.2G above
Main Memory	128 MB	256MB above
Operating system*	Windows 2,000 or later	Windows 2,000 or later
Web browser	Internet Explorer 5.0	Internet Explorer 5.0 above
Resolution	1,024*768	Higher than 1,024*768
Network	10 Base-T Ethernet	100 Base-T Ethernet

* Supported O/S: Windows 2000 Professional

Windows XP Professional / Windows XP Home Edition

2.5 Quick Installation Guide

Brief information for rapid installation is provided in this section. For more detailed information you are recommended to refer to pertinent documentations provided with the product or refer to our official website. (<http://www.cnbtec.com>)

① Connect XNET/XNET-Wireless to the LAN by using one of the following method

- i. If you have power adaptor with PoE, connect the network camera and PC as illustrated in Figure 2.5. Both power and network connection is made with a single LAN cable. The proprietary PoE (Power over Ethernet) adds convenience in installing the network camera by providing both power and LAN connection using single LAN cabling.

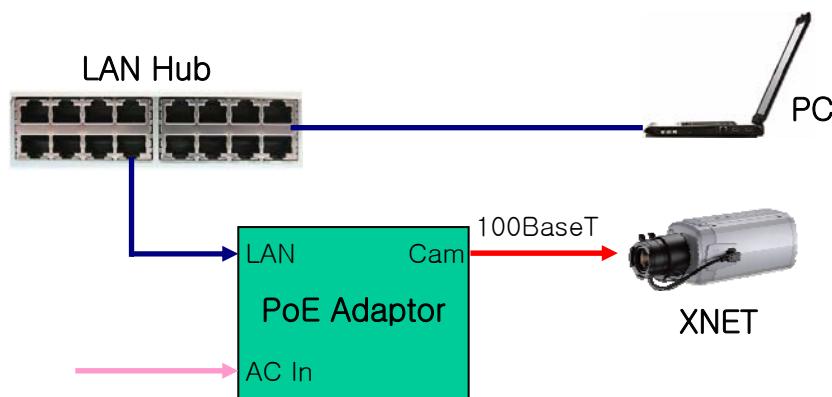


Figure 2-5. Connecting Network camera and PC using PoE Adaptor

ii. If you have standard power connect the network camera and PC as illustrated in Figure 2.6.

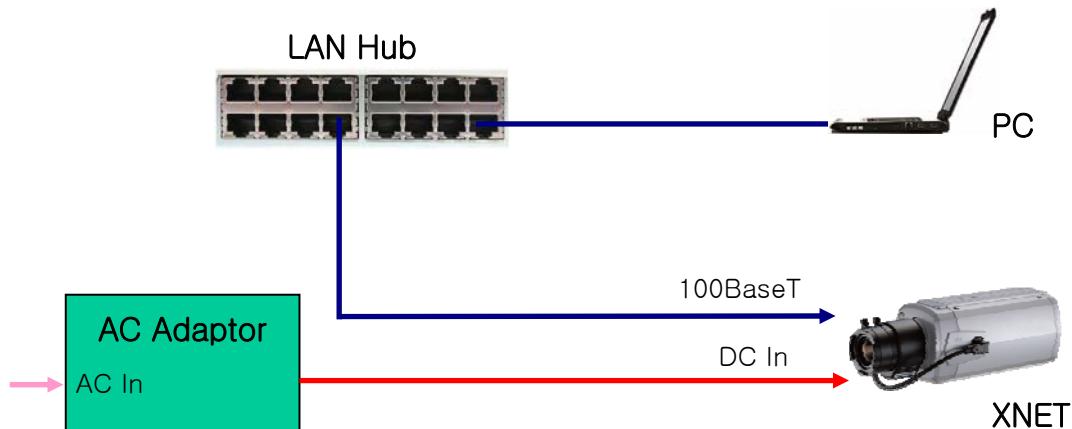


Figure 2-6. Connecting Network camera and PC using AC Adaptor

The XNET Series does not support standard PoE. Do not connect the network camera directly to a hub supporting standard PoE. We assume no responsibility for the damages caused by use of standard PoE device with this product.

② Install “IP installer” and “XNET-NVR” on your PC

Detailed information for installing these software can be found in **[IP-Installer User's Guide]** and **[XNET-NVR User's Guide]** respectively.

③ Assign IP address to XNET/XNET-Wireless using IP installer

Identify the type of the network environment and set up IP address. Detailed process of setting up IP address can be found in **[IP-Installer User's Guide]**. If network type is xDSL or Cable modem you need supplementary information provided by your ISP.

④ Connect to the XNET in Administrative Mode for initial parameter set-up

All parameters are set to factory default state when XNET/XNET-Wireless is delivered. You are asked to configure the system for your environment in administration mode. Detailed information of using administration mode can be found in **[5. Configuring XNET/XNET-Wireless in Administrative Mode]**. Among the parameters, the parameters in the following table should be set-up with proper values. Detailed information for the parameters in Administrative Mode is found in **[5. Configuring XNET/XNET-Wireless in Administrative Mode]**

[Note]: Set-up values are preserved even the power is turned off.

The table below shows the Administrator Mode's parameters list.

Page	Parameter	Setup value	Factory default value
Basic Setup	Video Size	Set the resolution of the video transmitted from XNET/XNET-Wireless.	Make sure that you press Check button to find out the number of maximum possible simultaneous users then set the number of users smaller than or equal to the number.
	Max Upload Rate	Set this value smaller than the upload speed of your network.	
	Frame Rate	The number of frames to be transmitted per second.	
	Video Rate	Bandwidth assigned for video transmitted from XNET/XNET-Wireless.	
User Admin & Time Setup	Administrator name & password	For safety, you are recommended to change these values from factory default. For new connection, you need to input changed values for corresponding fields. Do not disclose these values to others and memorize these values.	Default value Username : root Password : dw2001
	Current Time	Input correct time in this field.	Default value : 2001/1/1

⑤ Connect the input and output signals to XNET/XNET-Wireless

Connectors	Function	Signal description	Number
LINE-In/MIC	Audio in	Connect microphone or output from audio devices.	1
Line Out	Audio out for speaker	Audio from remote site is available from this connector in bi-directional audio mode. Connect speaker with amplifier.	1
Alarm In	Connecting Alarm Sensor	IR sensor, Motion Sensor, Smoke Detector...	1
Alarm Out	Connecting Alarm annunciating device	Siren, Flashing Light, ...	1
RS485	PT device control	Remote P/T/Z device connection having RS485 interface.	1
100Base-T	Network connection	Connect XNET/XNET-Wireless to the network, LAN, ADSL or Cable modem.	1
12VDC	Power connector	The input power source is 12VDC	1

⑥ Remote video connection to XNET/XNET-Wireless

Run "XNET-NVR" on your PC. Before connecting to XNET/XNET-Wireless it is needed to configure the connection information on the XNET-NVR. More detailed information of using "XNET-NVR" can be found in [\[XNET-NVR User's Guide\]](#).

⑦ Brightness adjustment

Adjust the brightness setting for optimized image quality from the CCD control menu in the administrator mode. When accessing the administrator mode for the first time, enter the username (default: root) and password (default: dw2001).

3. Connecting XNET/XNET-Wireless to the Network

XNET/XNET-Wireless supports LAN, xDSL, and Cable modem. It also supports shared IP environment where single IP address is shared by at least 2 IP devices. Refer to [\[IP-Installer User's Guide\]](#) for details of setting the IP address for XNET/XNET-Wireless.

3.1. Connecting to LAN

In case of connecting the XNET/XNET-Wireless to LAN, it is generally connected as in Figure 3-1.

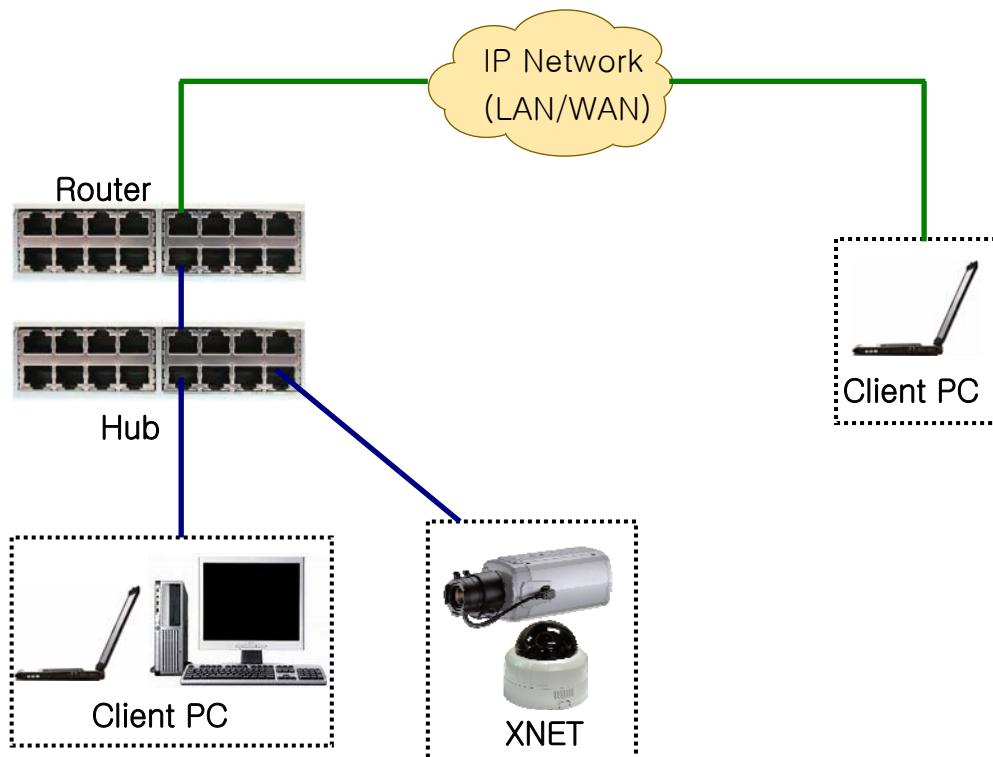


Figure 3-1. Connecting the XNET to LAN

- 1) Follow through steps ① to ③ in **Section 2.5** to assign IP address to XNET/XNET-

Wireless.

- 2) Install the viewer program (NVR or XNVR) and connect it to desired LAN.
- 3) Check if you can receive video data when connecting to XNET/XNET-Wireless using the viewer program.
- 4) When one or more IP video products are connected through a IP sharing device (i.e. router) to a larger network (i.e. the internet), in order to access each unit from outside the local area network, each device must have a unique RTSP (Real Time Stream Protocol) and HTTP port number. You must also configure your IP sharing device for "port forwarding". This is to enable the IP sharing device to forward packet data with unique port number (RTSP and HTTP) to unique internal IP address (local IP address). If you only plan to access multiple units from within a local area network, you do not need to change the RTSP and HTTP port numbers, unless other IP sharing devices sit in-between the client and the IP video products. For more detailed information regarding the use of IP sharing device refer to the document [**\[Use of Private IP network using IP-sharing-device\]**](#).

3.2. Connecting to xDSL/Cable Modem

- 1) Follow through steps ① to ③ in **Section 2.5** to assign IP address and other network parameters to XNET/XNET-Wireless.
- 2) Install XNET/XNET-Wireless and connect it to xDSL or Cable modem as in Figure 3-2.

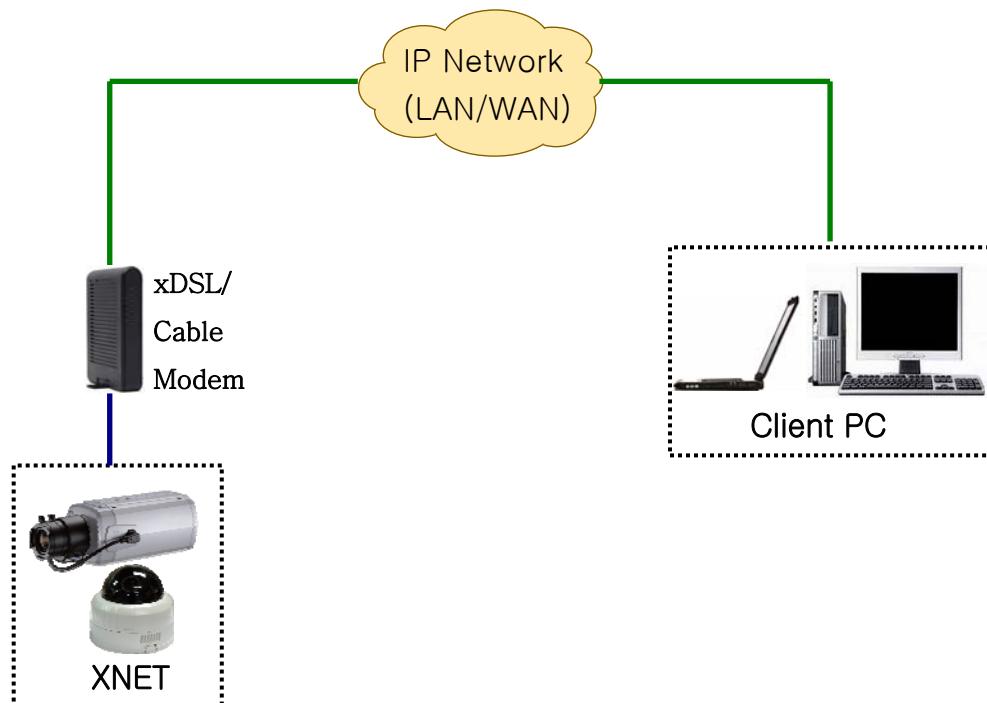


Figure 3-2. Connecting the XNET to ADSL Modem



When a static IP address is assigned to the xDSL or Cable modem, follow the same way as assigning a IP address for the case of LAN using IP-installer. To enable the notification of the changed IP address to the user over e-mail when the IP address is changed in dynamic IP environment, you have to assign the e-mail address when user name and password are input using IP-installer.



When connecting XNET/XNET-Wireless to xDSL or Cable modem, usually a straight LAN cable is required. But since some modems have crossover connections, in this case, you should use a crossover LAN cable. Please contact your service provider for detailed information.

4. IP-Installer

XNET/XNET-Wireless needs IP network parameters for connection to the network (Internet/Intranet). IP-Installer is a PC program for the initial network configuration to IP video products such as Network Camera or A/V Server. IP-Installer is provided in a CD supplied with XNET/XNET-Wireless or it can be downloaded from "www.cnbtec.com".

Detailed information of Installing and running IP-installer can be found in [IP-installer user's guide]

4.1. Main window of IP-Installer

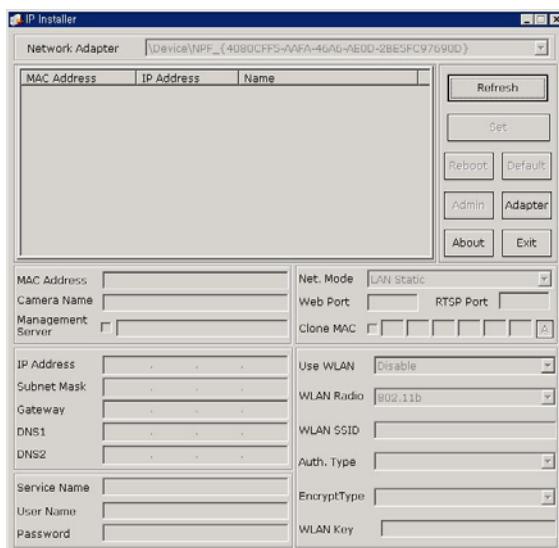


Figure 4-1. IP Installer

All the basic network parameters needed for the initial connection to IP video products can be assigned by IP-Installer. Once the basic parameters are assigned and the initial connection is

successfully made, you can connect to the administration page for more sophisticated control of the network parameters and other operational parameters. Refer to Chapter 5 for more details of the administration page.

5. Configuring XNET in Administrative Mode

5.1. Log On

There are two ways of connecting to XNET/XNET-Wireless administrative mode. One is through Internet Explorer (IE) and the other is through “**XNET-NVR**” or “**XNET-XNVR**” program. But this user’s guide will explain accessing by IE and “**XNET-NVR**” only. (Please refer to the XNVR user’s guide in the supplied CD for using “**XNET-XNVR**”.)

5.1.1. Log on from Internet Explorer

The URL of the XNET administrative mode is as followings:

[http://\[Allocated IP address\]/admin.htm](http://[Allocated IP address]/admin.htm)

Example: <http://172.16.64.133/admin.htm>

If you changed the HTTP port from default value you can login by typing in:

[http://\[XNET/XNET-Wireless IP address\]:\[HTTP port\]/admin.htm](http://[XNET/XNET-Wireless IP address]:[HTTP port]/admin.htm)

Example: <http://172.16.64.133:8080/admin.htm>

5.1.2. Log on from “**XNET-NVR**”

Select video channel in the viewing window of “**XNET-NVR**”. Selected video channel will be highlighted. Click  button on the right side of the display screen.

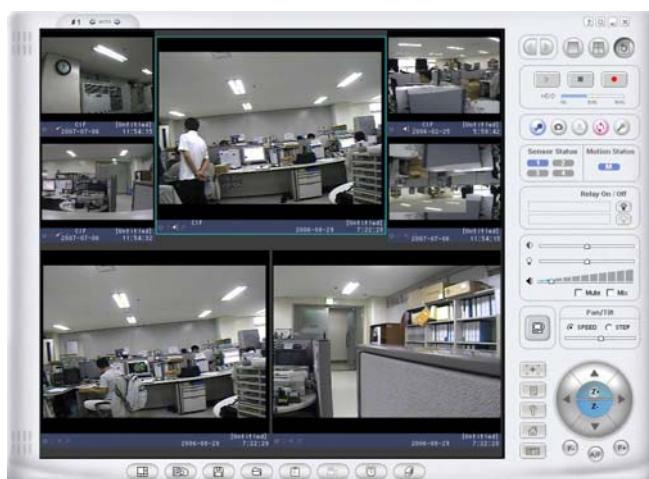


Figure 5-1. Log on to administrative mode from “XNET-NVR**”**

5.1.3. Input User Name and Password

After following the method which explained in Section 5.1.1. or 5.1.2, the login screen will open. Input the User Name and Password in the login screen shown in Figure 5-2.



Figure 5-2. Login screen

The default setting for the User Name and Password are 'root' and 'dw2001', respectively. Click on "OK" button to enter into the Basic Setup page of Administrative Mode. If you have changed the username and password of the Administrator, you must log on with the changed username and password.



After login to the administrative mode, change the user name and password for security. Please refer to section 5.6. **"User Admin & Time Setup"** for detailed information.



If you forget the user name and password, the only way to reset it is by resetting the unit to factory default through the reset button. It will make all the settings go back to default. In this case, you have to setup the network parameters again. Please refer to section 3.

5.2. Basic Setup

Setup the basic parameters of the XNET/XNET-Wireless.

Administration Tools

English

BASIC SETUP

System Name Box Network Camera

Screen Capture in Web Viewer

Directory

Audio Input Selection

Line In (radio button) Mic (radio button)

Video Quality & Bandwidth Control

Input Video Source NTSC

Video Size 352 x 240 (If D1 size) De-Interlace

Video Rotation

Channel	
Max. upload rate	7168 Kbps
Frame rate	20 Frames
* Lower frame rate ensures better picture quality at the same encoding rate.	
* There is no 1:1 relationship between frame rate and bandwidth.	
Video rate	384 Kbps
Audio rate	32K-Audio
Possible Max. Users	17 <input type="checkbox"/> Check
Remained	96 Kbps
Limited Users	17 (Person)

SAVE

Figure 5-3. Basic Setup

Field/Button	Sub Field /Button	Description
Language		Select a language of your choice. English, Korean, Chinese, Japanese, Spanish, Italian, Portuguese are available.
System Name		Logical name of the XNET. It is same as the one set-up by IP-installer. You can reassign the system name.
Screen Capture in Web Viewer		Save a image file captured from the web viewer to the folder of your choice. The file name format is as follows Capture_year_month_day_minute_second.bmp.

Audio Input Selection		Select the type of input audio. Select Line In for using Line-out from audio devices. Select Mic for using microphone.
Video Quality & Bandwidth Control	Input Video	This field is set by the factory
	Video Size	Select a video size for transmission- <ul style="list-style-type: none"> ● NTSC(30 fps Max.): 720x480, 352x240, 176x144 ● PAL/SECAM (25 fps Max.): 720x576, 352x288, 176x144
	Interpolation/ De-Interlace	Select the imaging method when the video resolution is Full D1. <ul style="list-style-type: none"> ● Interpolation: Filtering not used. Provides clear images than De-Interlace method, but a jaggy image will appear to the moving object. ● De-Interlace: Using filtering. Proper to the moving objects, but not clearer than Interpolation method.
	Max. upload rate	Assign maximum bandwidth of the uplink for the network connected to XNET/XNET-Wireless.
	Frame rate	Assign number of video frames to be transmitted for each second. You can improve picture quality by lowering frame rate for the same bandwidth.
	Video rate	Assign bandwidth for transmitting video data.
	Audio rate	Assign bandwidth for transmitting audio data. Audio data is not transmitted if you select " NA "
	Check	After you finish set up of video and audio for all the channels, click on this box to obtain the possible maximum number of users (Possible Max Users) and remaining network bandwidth (Remained) remaining when possible maximum users are connected.
	Possible Max Users	It shows the number of maximum simultaneous connections for the network connection set-up.
	Remained	It shows the network bandwidth remaining when Possible Max Users are connected.
Limited users		Useful network bandwidth varies according to the condition of the network. This parameter is used to limit the number of the simultaneous connections below the number shown in Possible Max Users .
Save		Save the set-up parameters when the set-up parameters are done.

5.3. Network Configuration

Setup the network parameters appropriately in accordance with your network environment.

Many of the parameters in this page are same as those set up by "IP-Installer".

Administration Tools

English

NETWORK CONFIGURATION

IP Assign Type (*: System will be reset)

Static IP Setup

IP Address	192.168.0.18	Subnet Mask	255.255.255.0
Gateway	192.168.0.1		
DNS1	0.0.0.0	DNS2	0.0.0.0

PPPoE Setup

Username		Password	
----------	--	----------	--

DHCP Setup

Host Name		Domain Name	
-----------	--	-------------	--

Use Cloned MAC Address [00 00 00 00 00 00]

Port Change (*: System will be reset)

HTTP	80	(default: TCP 80)	RTSP	554	(default: TCP 554)
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IP Filtering

Restrict Administrator Access

Base IP Address	0.0.0.0	Mask	0.0.0.0
-----------------	---------	------	---------

E-Mail Setup **Notify for IP Change**

Recv E-mail Address		
Return E-mail Address		

Using Built-in SMTP Server

Using External SMTP Server

SMTP Server			
Username		Password	

FTP Server Setup

IP Address				
Username		Password		
Directory		Port	21	(default: TCP 21)

Management Server

Logon to server mgmt.ipdvrfree.com

Figure 5-4. Network Configuration

Field/Button	Sub Field /Button	Description
IP Assign Type		The network types supported by the XNET/XNET-Wireless are LAN(fixed IP), PPPoE, and DHCP(automatic IP allocation)
	Static IP Setup	When the network environment is fixed IP, select 'LAN' in the network type, and put the IP address, Subnet Mask, Gateway, DNS1 and DNS2. Ask your network administrator or ISP for the information. DNS2 is used when DNS1 does not work.
	PPPoE Setup	When the network environment is PPPoE and IP address is assigned automatically, select 'PPPoE' in the network type. Next, fill in the 'User Name' and 'Password' fields with the values assigned by the ISP.
	DHCP Setup	When the network environment is "automatic IP allocation by DHCP", select 'DHCP' in the network type. For cable modem connection, select this mode. Refer to [IP-installer user's guide] for "Host name and domain for Cable Modem"
	Clone MAC	Refer to [IP-installer user's guide] for "Clone MAC"
Port Change		Each port should have a number below 65,535.
	RTSP	The RTSP port is used for transmitting real time audio/video data from the network camera. Default is 554 .
	HTTP	HTTP port is used for the connection to the admin page. Default is 80 .
IP Filtering		You can restrict the access to the administrator page from IP addresses beyond certain IP address range.
	Restrict Administrator Access	Check at this box to restrict administrative log on.
	Base IP Address	Input IP address of the PC which is intended to be used for log on to administrative mode.
	Mask	This is same as subnet mask. It is used to allow administrative log on only to the PCs located in the same subnet as the base IP address. If you want to allow only one PC to access in administrative mode, set this value to 255.255.255.255.
E-Mail Setup	Notify for IP	If you check this, the IP address will be sent via E-mail whenever the IP address changes. It is sent to the E-mail

Change

		address set by " Recv E-Mail Address ".
	Recv E-Mail Address	Enter E-mail address to receive information sent from your network camera. This is same as E-mail field in IP-installer.
	Return E-Mail Address	Fill in this field with correct e-mail address to identify the mail sent from the network camera
	Using Built-in SMTP Server	If you are using web mail services having no SMTP server, check the radio button at the left of " Using Built-in SMTP Server " and enter valid e-mail address to avoid spam filtering on the receiving e-mail server.
	Using External SMTP Server	If you are using external mail server, fill in the fields with proper parameters.
		Setup IP address, Username, Password and Directory of FTP server to send data in case of alarm. Default FTP port number is 21.
FTP Server Setup		You can register the network camera to the Management Server (DDNS Server) for name service to your network camera.
Management Server	Log on to server	<p>Check this box to enable log on to the management server. By log on to the management server your network camera can use domain name instead of numeric IP address. This feature is particularly useful when your network camera is using dynamic IP address. Input valid management server (DDNS Server) name for the service.</p> <p>You must have an account on the management server (http://mgmt.ipdvrfree.com/) and register your IP video devices under your account to use this feature.</p> <p>Domain name of your network camera can be assigned when you register your network camera to the management server under your account.</p>
Save		Save the set-up parameters when the set-up parameters are done.

5.4. Wireless Configuration (XNET-Wireless Only)

For the case of a network camera having built in wireless LAN it is needed to set up wireless LAN configuration parameters. Click “**Wireless Configuration**”.

Figure 5-5 Wireless Configuration

Field/Button	Sub Field /Button	Description
Wireless LAN Setup	WLAN Mode	Select “ESS” to use wireless interface. If “Disable” is selected, Ethernet interface is used instead of wireless LAN interface.
	WLAN Radio	Select the mode of Wireless Radio.
	SSID	Enter the ID of the wireless LAN access point to be connected when wireless LAN interface is selected.
	Authentication	Select the type of authentication.
	Encryption	Select the mode of encryption. If encryption is not needed, select “OFF”
	Key	Set the value of encryption key or pre-shared key.
WLAN Information	Power level	Set the maximum transmission power level or wireless LAN.
	MAC Address	Indicates MAC address of the wireless LAN.
	BSSID	Indicates the ID of the connected access point. In general

		the MAC address of the access point is shown.
	Current Channel	Indicates the channel number of present connection.
	Signal Strength	Indicates the strength of the received signal.
	Link Quality	Indicates the quality of Link level.
	Tx Rate	Indicates the speed of the latest transmission

5.5. CCD Adjustment

You can optimize the quality of input video by adjusting the parameter of CCD. To enter into this mode, click “**CCD Adjustment**” in administrative page. You will find a screen shown in Figure 5-6.

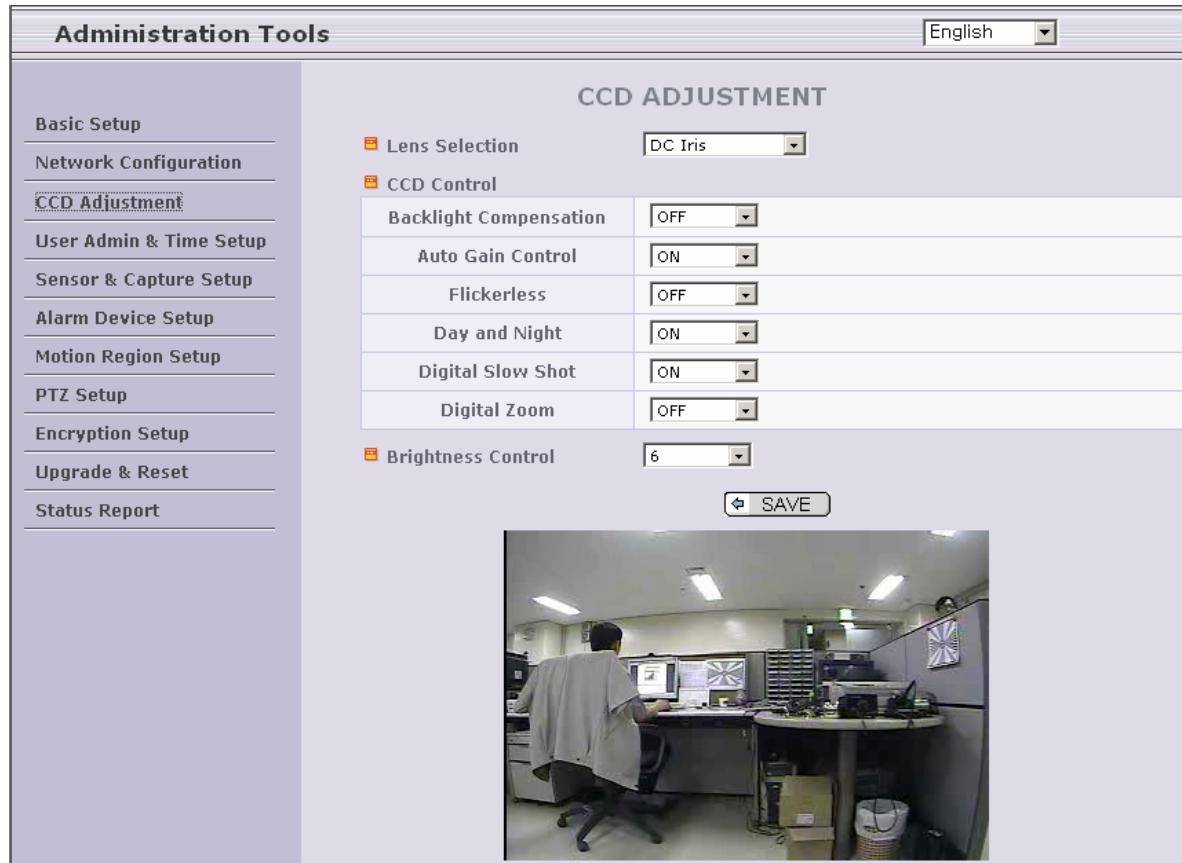


Figure 5-6. CCD Adjustment

Field/Button	Sub Field /Button	Description
Lens Selection		Standard XNET is delivered without lens. Any lens having C or CS mount type can be installed on XNET. A C-CS adaptor is packaged with XNET for accommodating CS type lens. Confirm whether your lens is Non DC IRIS or DC IRIS lens before your selection and then click “ SAVE ” to save your selection.
	DC Iris	DC IRIS lens is a kind of auto IRIS lens. Opening of IRIS can be adjusted by applying DC voltage. The opening of IRIS is optimally adjusted by detecting the signal level from CCD. This type should be selected when DC IRIS lens is mounted on your XNET/XNET-Wireless.
	ELC	Select this mode, when using a fixed focal lens.

CCD Control	Backlight Compensation	When the camera is acquiring video from object with bright backlight, it is hard to identify the details of target object since the object appears very dark. Apply backlight compensation mode for this case. Default mode is backlight compensation OFF .
	Auto Gain Control	If you set the value to ON , the gain is automatically adjusted in accordance with the illumination condition.
	Flickerless	In case of using NTSC type iCanViewV230 in 50Hz AC regions or using PAL type XNET/XNET-Wireless in 60Hz AC region, video output tends to flicker when XNET/XNET-Wireless is used under fluorescent lamps. This mode reduces the flickering phenomena. If this mode is selected, electronic shutter speed is set to 1/100 sec for NTSC camera while it is set to 1/120 for PAL camera to synchronize the shutter speed to AC current. The default value is OFF . <Note> : Make sure that you apply this mode only when using NTSC camera in PAL region or PAL camera in NTSC region.
	Day and Night (option)	Set the value to ON to enable the camera's day & night feature set. Under very low light conditions, the camera automatically switches to "Night Mode/Black and White Mode," delivering daylight quality Black & White video.
	Digital Slow Shot (option)	Setting the value to ON , tells the camera to sacrifice the video refresh rate in order to compensate for ultra low light conditions, improving the brightness and sharpness of the video.
	Digital zoom (option)	Set the value to ON to enable digital zoom.
	Brightness Control	Adjust the amount of light reaching CCD manually. Select the value between 1 and 32. For brighter video select higher number.
SAVE		Click " SAVE " to save your selection.

5.6. User Admin & Time Setup

You can change the ID and password of users and also assign different attributes for each user.

USER ADMIN. & TIME SETUP

User Administration

Administrator

Username	<input type="text"/>
Password	<input type="text"/> (8 ~ 16 char)
Confirm Password	<input type="text"/> <input type="button" value="SAVE"/>

Add User

Username	<input type="text"/>
Password	<input type="text"/> (8 ~ 16 char)
Attribute	<input type="checkbox"/> Audio <input type="checkbox"/> Bi-Audio <input type="checkbox"/> PTZ <input type="button" value="SAVE"/>

User List

<input type="text"/>	<input type="button" value="DELETE"/>
----------------------	---------------------------------------

Authentication for viewing

<input checked="" type="checkbox"/> Yes <input type="button" value="SAVE"/>
If no, default attribute <input checked="" type="checkbox"/> Audio <input checked="" type="checkbox"/> Bi-Audio <input checked="" type="checkbox"/> PTZ <input type="button" value="SAVE"/>

Time Setup

Current Time	Date <input type="text" value="2007-07-05"/> Time <input type="text" value="09:58:58"/>
Time Setting	<input checked="" type="radio"/> Synchronize with an Internet Time Server <input type="text" value="time.windows.com"/>
	Specific Time Server <input type="text"/>
	Select Time Zone GMT <input type="text" value="+9:00"/> <input type="checkbox"/> Daylight saving
	<input type="radio"/> Synchronize with this Computer Time
Date <input type="text" value="2007-07-05"/> Time <input type="text" value="09:54:06"/>	
<input type="radio"/> Set Manually	
Date <input type="text" value="2007-07-05"/> (yyyy-mm-dd)	
Time <input type="text" value="09:58:55"/> (hh:mm:ss)	

Figure 5-7. User Admin. & Time Setup

Field/Button	Sub Field /Button	Description
User Administration	Administrator Username	Admin ID. Default ID is " root "
	Administrator password	Admin password. The default password is " dw2001 ".

	Administrator Confirm Password	Enter the password once more to confirm the password.
	Add User Username	Enter the user ID you want to add. Up to 100 users are supported by XNET/XNET-Wireless.
	Add User Password	Enter the user password.
	Add User Attribute	You can set different system resource access capabilities for each of the users. Attributes are Audio, Bi-directional Audio and Pan/Tilt control. For example, if you want a specified user to hear the audio from the XNET/XNET-Wireless, check Audio in the check box.
	User List	<p>You can list "user ids" and " their attributes" here.</p> <p>format : user id[A, BA, P] :</p> <p style="padding-left: 40px;">A – audio,</p> <p style="padding-left: 40px;">B – bi-directional audio,</p> <p style="padding-left: 40px;">P – ptz(Pan/Tilt), not used for this model.</p> <p>You can delete specific user by clicking the DELETE button.</p>
Authentication for Viewing	YES SAVE	<p>If you want to restrict viewing access to the XNET/XNET-Wireless, check at the box left to Yes and click on Save. Users need to input ID and password to connect to XNET/XNET-Wireless. The a pop up window as shown below..</p> 
	If no, default attribute	If the username or password are incorrect, an error message will be displayed
Time Setup	Current Time	It shows you the current time of XNET/XNET-Wireless.

	Synchronize with an Internet Time Server	Synchronize the time with the internet time server at the right. When the time server is out of the reach from XNET/XNET-Wireless, you can assign time server by filling in Specific Time Server field.
	Synchronize With this Computer Time	Synchronize the time with the time of the PC.
	Set Manually	Set the time manually. Fill in the fields with desired formats.
SAVE		Save the set up parameters



If you lost Administrator's ID and password, the only means of recovery is to reset the settings to factory default, but then you lose your previous settings.

5.7. Sensor & Capture Setup

This is the setup page for sensors and video capture conditions. Captured video can be sent to user by FTP or E-mail upon configuration.

Figure 5-9. Sensor & Capture Setup

Field/Button	Sub Field /Button	Description
Sensor Setup	Sensor 1	Select sensor type. There are two types of sensors which are Normal Open and Normal Close .
	Name	Input logical name for the sensor.
Video Capture Condition		It sets the condition of video transmission via FTP or E-mail. The XNET/XNET-Wireless supports 2 types of conditions which are mutually independent.
	Sensor Select	Check to enable Sensor initiated capture.
	Motion Detection Select	Check to enable motion detection initiated capture.
Captured Video		Select a way of sending captured video. You can send captured video through FTP or E-mail, or both.

Transmission	By E-Mail	Check to send captured video by e-mail. E-mail is sent to the Recv E-mail address . Refer to [Section 5.3.] Captured video data for E-mail consists of intra frames only in consideration of the limited storage space for E-mail account. FTP data contains entire video frames.
	By FTP	Check to send captured video by FTP. FTP is sent to the FTP Server . Refer to [Section 5.3.] If the FTP server is not properly assigned in " Network Configuration " mode, XNET/XNET-Wireless ignores the video transmission by FTP
SAVE		Save the setup parameters.



To prevent the client mail server's storage capacity excess, the system send only video data (iframe data) to the client in the E-Mail mode. But in the FTP mode, system sends all the data including the audio data and the full frame of video data. If you want to transmit all the data, select the FTP transmission mode.



When the FTP server or email address is invalid, the transmission process will be discarded

5.8. Alarm Device Setup

Test the alarm output and describe the condition of alarm annunciation.

Figure 5-10. Alarm Output Setup

Field/Button	Sub Field /Button	Description
Alarm Device Test		Test alarm devices. Click on On/Off for testing. Small box with white background indicates the status of the relay by On/Off.
	ON	On the alarm output (close the relay contact)
	OFF	Off the alarm output (Open the relay contact)
Sound Test		Used for audio/voice testing
Alarm Device Active Condition		Setup the condition of activating alarm device. Select sensor or motion detection as the condition.
	Name	Logical name of the alarm device can be input into the box at the left.
	Sensor	Check at the box at the left to allow alarm generation upon sensor input.
	Motion	Check at the box at the left to allow alarm generation upon Motion detection
	Duration	Set the duration of Alarm annunciation. 10/30 sec, 1/2/5/10/30 min, 1 hour.
SAVE		Save the setup parameters.

5.9. Motion Region Setup

Set the motion detection regions. Up to 3 regions can be defined.

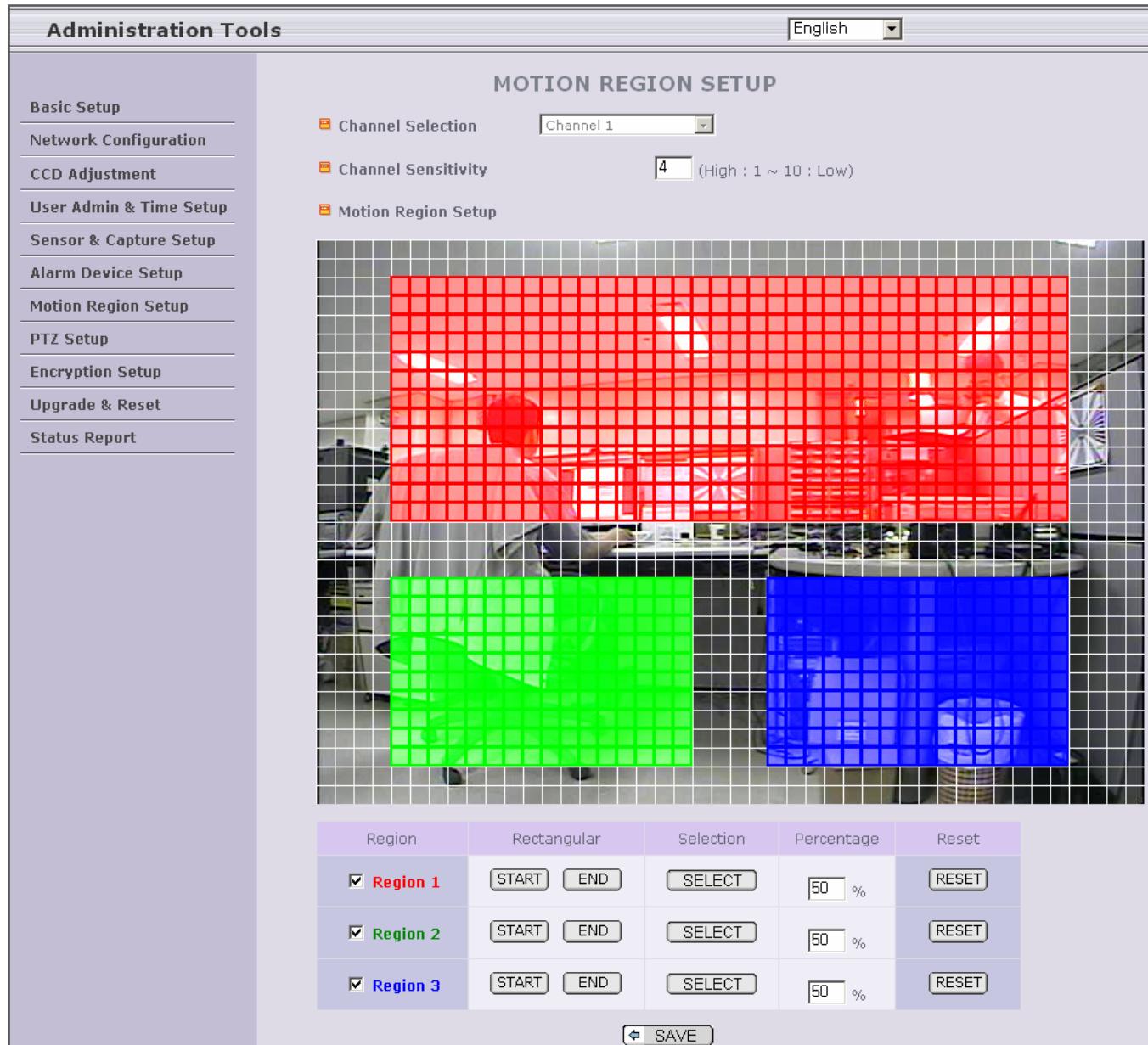


Figure 5-11. Motion Region Setup

Field/Button	Sub Field /Button	Description
Channel Selection		Not applicable.
Channel Sensitivity		Set the sensitivity in motion detection for each channel. 1 is the most sensitive, and 10 is the least sensitive.

Motion Region Setup		Set up to 3 the motion detection zone
	Region 1, 2, or 3	Enable each zone by checking the box at the left of each Region. To set the region: Click on START and click on a box overlaid on the video Click on END and click on a box overlaid on the video. The defined motion detection zone will be indicated with corresponding colors. Legend of the color: Region 1: red, Region 2: green, Region3: blue.
	START	Enable selection of rectangular zone start.
	END	Enable selection of rectangular zone end.
	SELECT	Click on this button and click on desired rectangle to add or delete the rectangular region to the motion detection zone.
	Percentage	This value controls the sensitivity of each region. 1 is the most sensitive and 100 is the least sensitive
	RESET	Clears the start & end point to (0,0) & (0,0)
SAVE		Save the setup parameters.

5.10. PTZ Setup

Setup and test the PT(Pan/Tilt) devices.

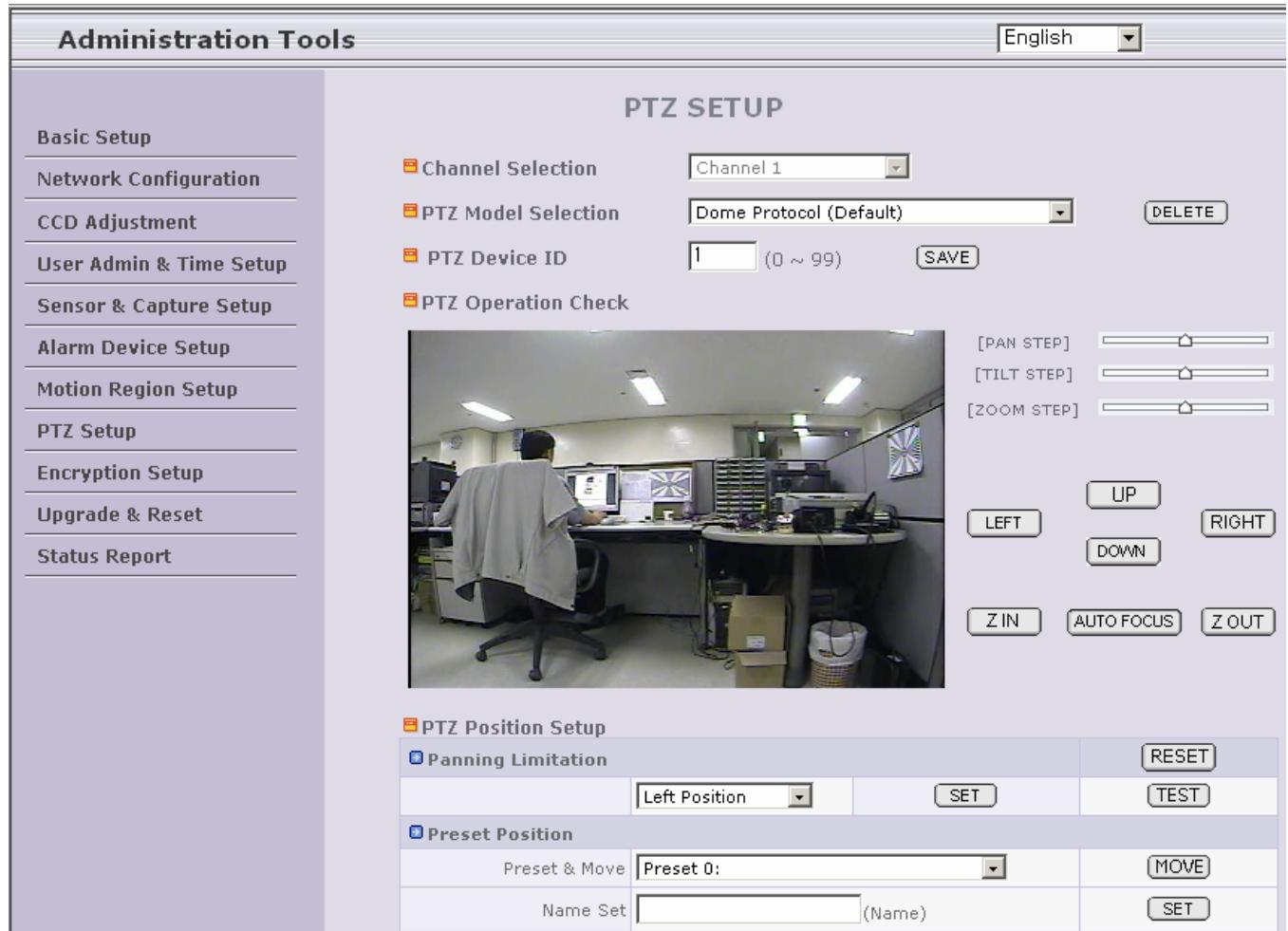


Figure 5-12. PTZ Setup

Field/Button	Sub Field /Button	Description
Channel Selection		Not applicable
PTZ Model Selection		Choose the PT model.
	Delete Button	Press this button to delete the setup of PT
PTZ Device ID		Your PT device needs an ID, input ID in this field. Click on SAVE to save the ID. Note that zoom is not applicable for XNET

PTZ Operation Check		You can check the various operation of the PT devices. <ul style="list-style-type: none"> • "Left"/"Right"/"UP"/"DOWN" • ZIN(Zoom In), AUTOFOCUS, ZOUT(Zoom Out) functions does not applicable to this product
PTZ Position Setup		You can set up the PTZ limitation & preset positions if the PT device supports it.
	Panning Limitation	Set the left/right limitation and test. Select Left/Right position before setting.
	Panning Limitation RESET	Clear the panning limitation previously set. The panning range will be the same as the PT device allows.
	Panning Limitation SET	Set the present position as left or right panning limitation.
	Panning Limitation TEST	Test the panning limitation which was set previously.
	Preset Position	Set the preset position and test.
	Preset Position Preset & Move	Select a preset position to move to. Movement to the preset position will be made upon clicking on " MOVE "
	Preset Position Name Set	Assign logical name for the preset position. Enter into the field and click on SET.
	Preset Position Set	Set the present position as a preset position with position number shown at the right of "Preset & Move" and name shown at the right of "Name Set".

<Note> : "PTZ Position Setup" feature is applicable only for the PT devices that support it.

5.11. Encryption Set up

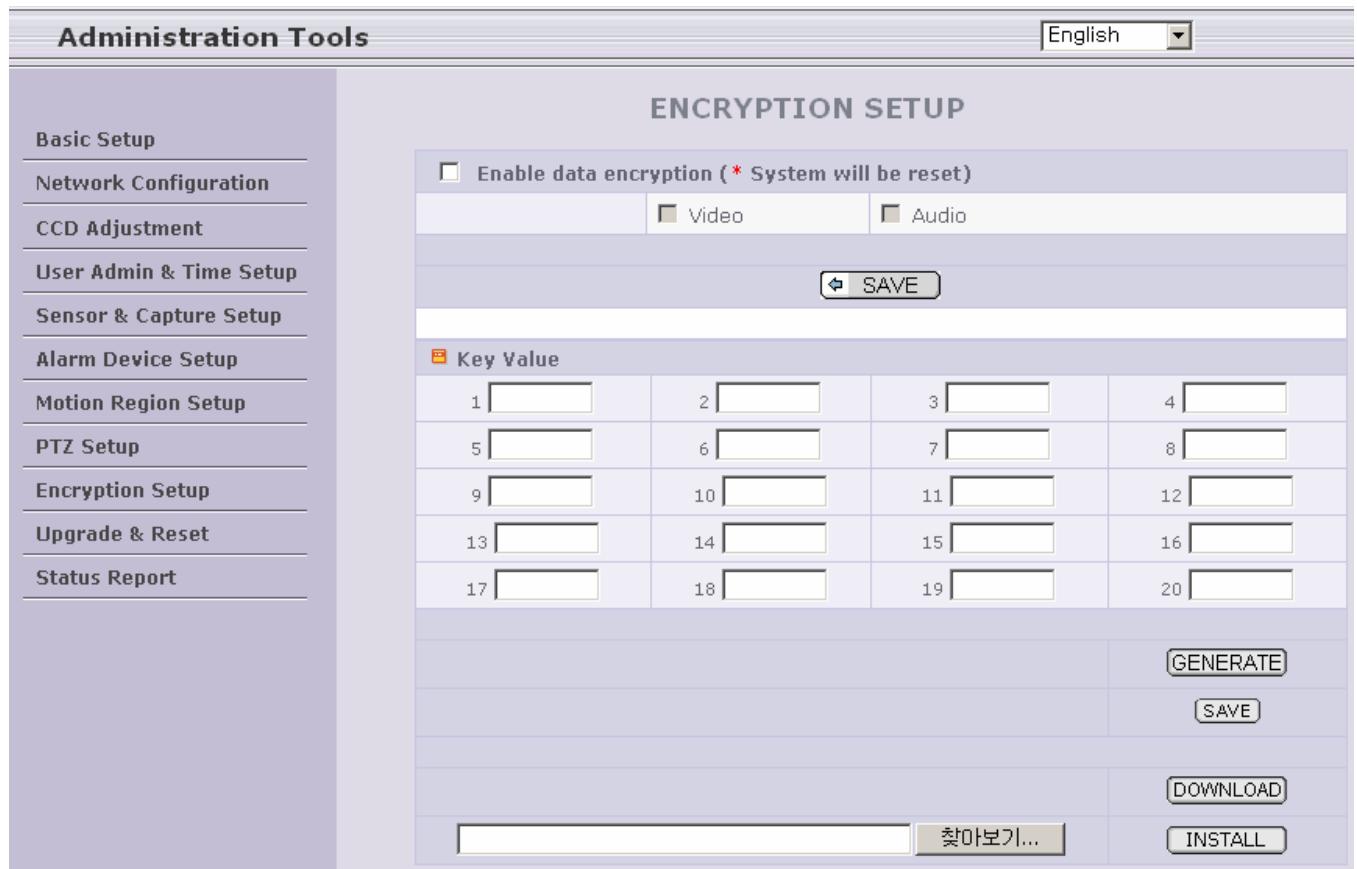


Figure 5-13. Encryption Setup

For additional security to the video and audio data transmitted from the network camera, you can set key codes and use them for encrypting the data from the network camera.

You can selectively activate encryption for the video and audio data. For enabling the encryption, check at the box at the left of the "Enable data encryption" then check at the proper check boxes at the left of "Video" and "Audio". After the selection, click on SAVE button beneath the "Video" and "Audio" check boxes.

Field/Button	Sub Field /Button	Description
Enable Data Encryption		Check at this box to apply data encryption. If it is unchecked encryption is applied on neither video nor audio data regardless of the selection below.
	Video	Check to enable encryption on the video data.
	Audio	Check to enable encryption on the audio data.
	SAVE	After the selection, click on SAVE button.

Key Value		You can use up to 20 different key codes for the encryption of the data
	GENERATE	To generate the key value click on "GENERATE" button. The boxes for the Key values will be filled with new values.
	SAVE	Save Key value on the network camera: Click on SAVE button beneath GENERATE button to save the key value generated by the network camera.
	DOWNLOAD	Download Key value to your PC: The key values can be downloaded and stored as a file to your PC for reference when you make connection. When encryption is enabled, the PC client program will ask for particular key value out of the 20 available key values. The downloaded file name format is key_value.rtf
	INSTALL	Upload key value to the network camera: The key value stored on your PC can be uploaded to your network camera. This feature is useful when you manage multiple network cameras having same key value sets. Select a file having key values then click on "INSTALL" button to upload the key values.

5.12. Upgrade & Reset

You can upgrade the XNET/XNET-Wireless via the IP network.

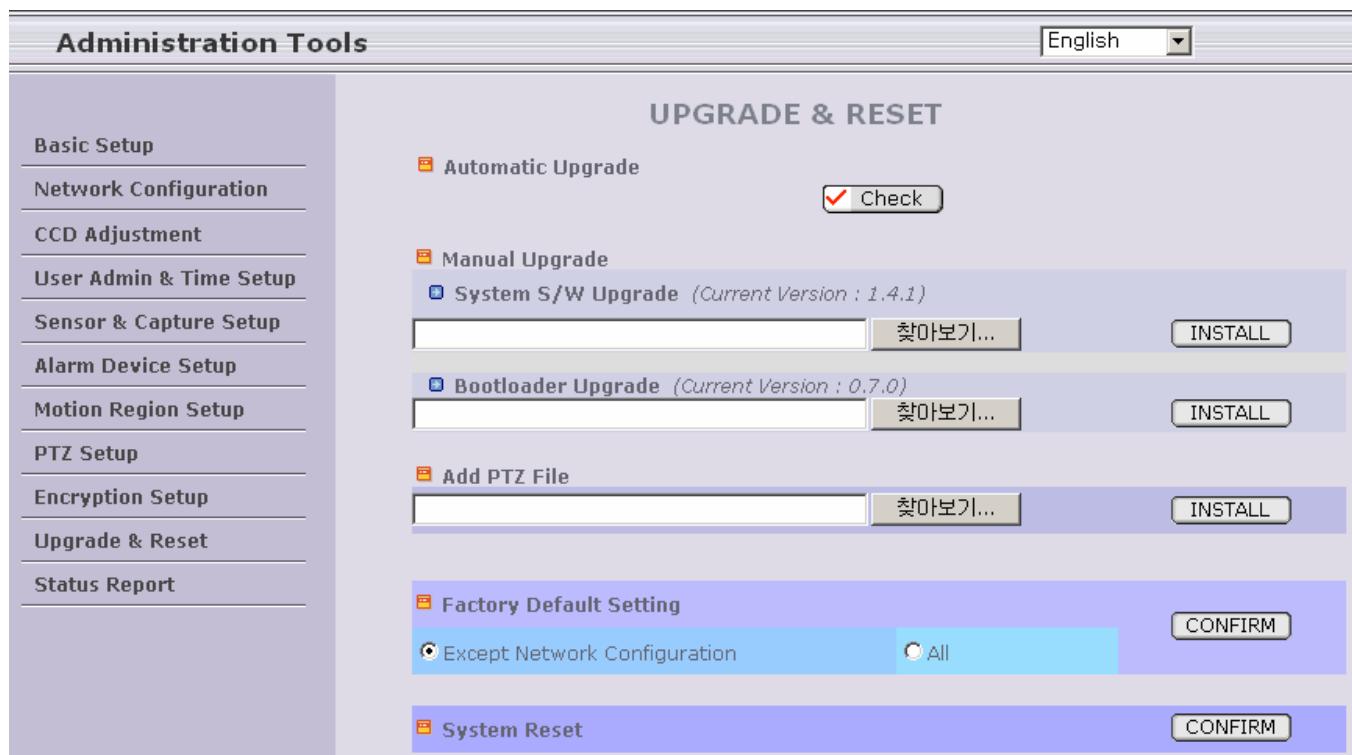


Figure 5-14. Upgrade & Reset

For each of the upgrade of the system component, upgrade code should be downloaded from **cnbtec**'s home page before the system upgrade is performed.

(Refer to [\[6.4. How to Upgrade Your XNET/XNET-Wireless System\]](#))

Field/Button	Sub Field /Button	Description
Automatic Upgrade		<p>Automatic upgrade is a feature that enables network camera to upgrade to newly released system software by automatically connecting to upgrade server. Click on check button to find the availability of upgrade firmware.</p> <p>Note that automatic upgrade is not supported for this product.</p>
Manual Upgrade		Upgrade the system manually.
	System S/W Upgrade	Upgrade the system software installed in the network camera via the network. System software needed for the upgrade can be downloaded from cnbtec's home page.

		Refer to [6.4. How To Upgrade Your XNET/XNET-Wireless System] .
	Bootloader Upgrade	Upgrade the bootloader installed in the network camera via the network. Bootloader needed for the upgrade can be downloaded from cnbtec's home page. Refer to [6.4. How To Upgrade Your XNET/XNET-Wireless System] .
Add PTZ File		Add a new PT driver software via the network. PT driver can be downloaded from cnbtec's home page. Refer to [6.4. How To Upgrade Your XNET/XNET-Wireless System] .
Factory Default Setting		Re-initialize the network camera to factory default state. By checking on a Radio button "Except Network Configuration", you can preserve the parameters for the network. Checking on "All", will return all the parameters to factory default state. Once XNET/XNET-Wireless is re-initialized as factory default state, it should be set-up again using IP-Installer.
System Reset		Perform remote reset by clicking the "CONFIRM" button. All previous connections will be disconnected upon reset. XNET/XNET-Wireless does not resume the connections and the users must re-connect to the server manually.

5.13. Status Report

It shows you system records since the system started.

The screenshot shows the 'Administration Tools' interface with the 'Status Report' tab selected. The left sidebar contains a list of setup categories: Basic Setup, Network Configuration, CCD Adjustment, User Admin & Time Setup, Sensor & Capture Setup, Alarm Device Setup, Motion Region Setup, PTZ Setup, Encryption Setup, Upgrade & Reset, and Status Report. The main area is titled 'STATUS REPORT' and displays a list of system logs and module versions. At the bottom, there is an 'Additional Information' table.

Additional Information	
MAC Address	00:07:18:10:14:a8
Public IP Address	0.0.0.0
Management Host Name	
System ID	01080106
Connected Session	0

Figure 5-15. Status Report

You can check the problems as well as the versions and event status of the whole system and each module.

6. Tips for using XNET/XNET-Wireless

6.1. ALARM-IN and ALARM-OUT

ALARM connectors are used to connect various sensing and alerting devices. Examples of sensing devices are infrared sensors, motion sensors, heat/smoke sensors, magnetic sensor, etc. ALARM-OUT is used for connecting alerting device such as loud speaker, flashing light, etc.

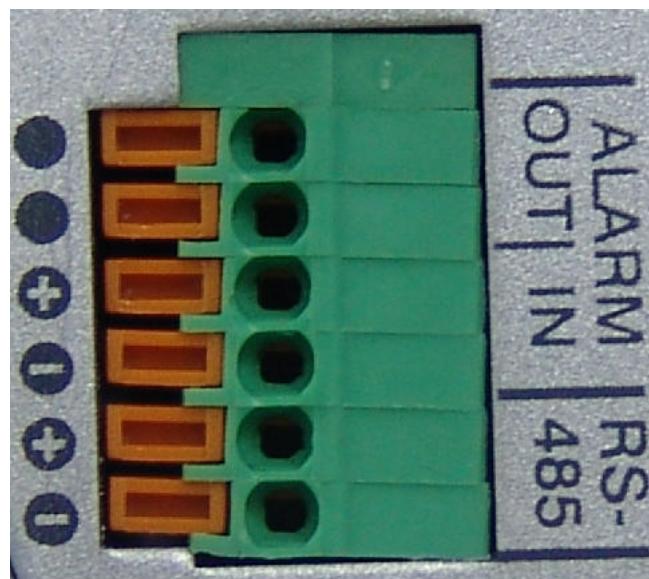


Figure 6-1. ALARM-IN/ALARM-OUT Connector

6.1.1. ALARM-IN

Connect the two wires of the sensors to "Alarm In". The sensor type can be set in Administrative mode. Output lines providing on-off switching are connected between "+" and "-" pins. **Figure 6-2** shows the input circuit of "Alarm In".

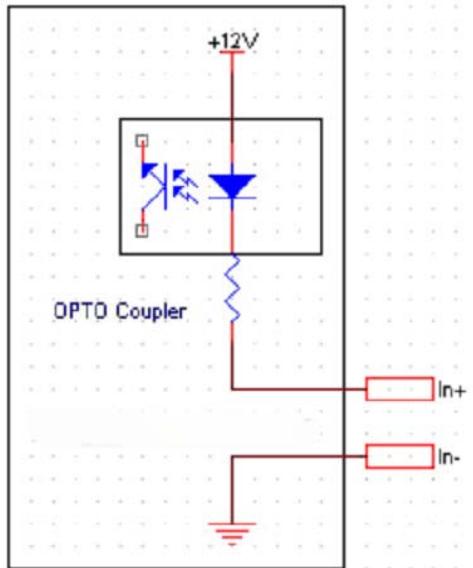


Figure 6-2. ALARM-IN circuit

6.1.2. ALARM-OUT

A Relay output is provided for connecting alarm devices or for remote on/off devices such as light control. Relay circuits are normal open and circuits are closed upon alarm output or remote on. The relay is capable of switching AC/DC 30V,1A electrical signal.

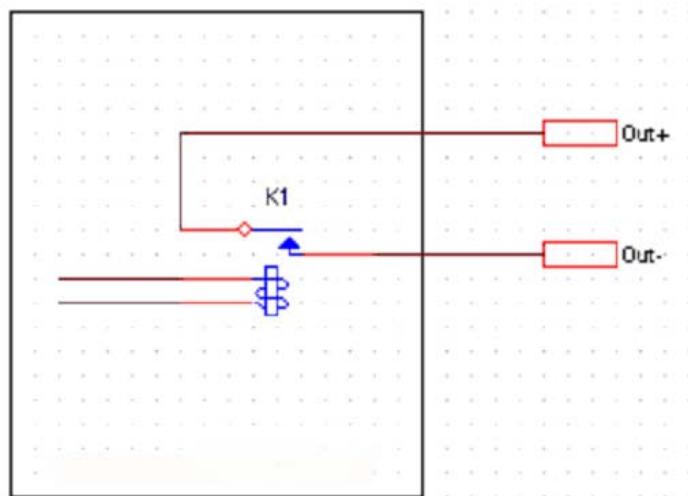
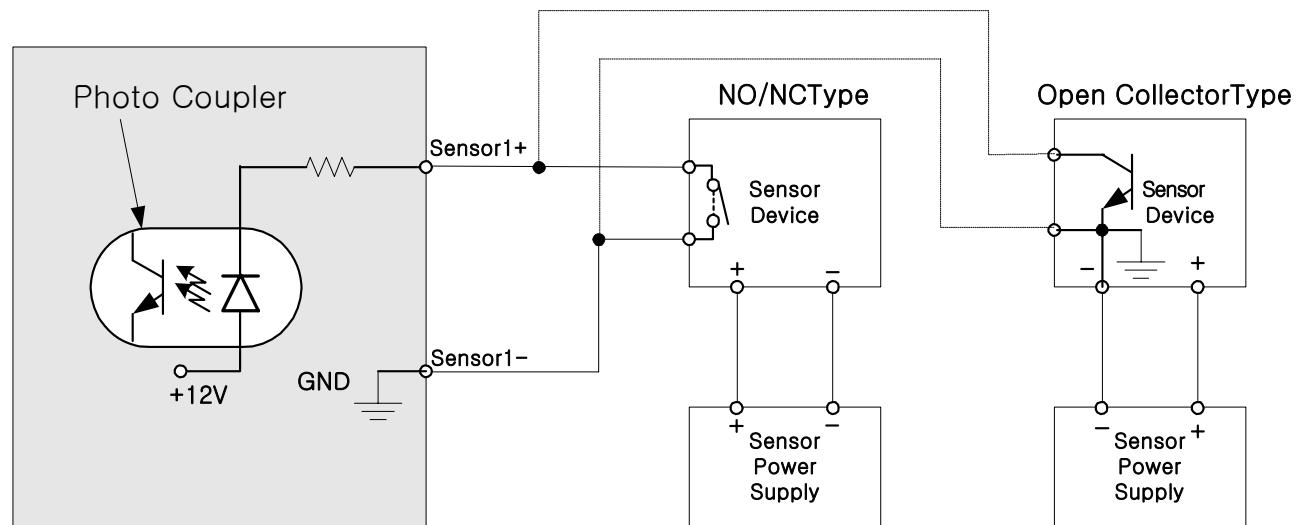


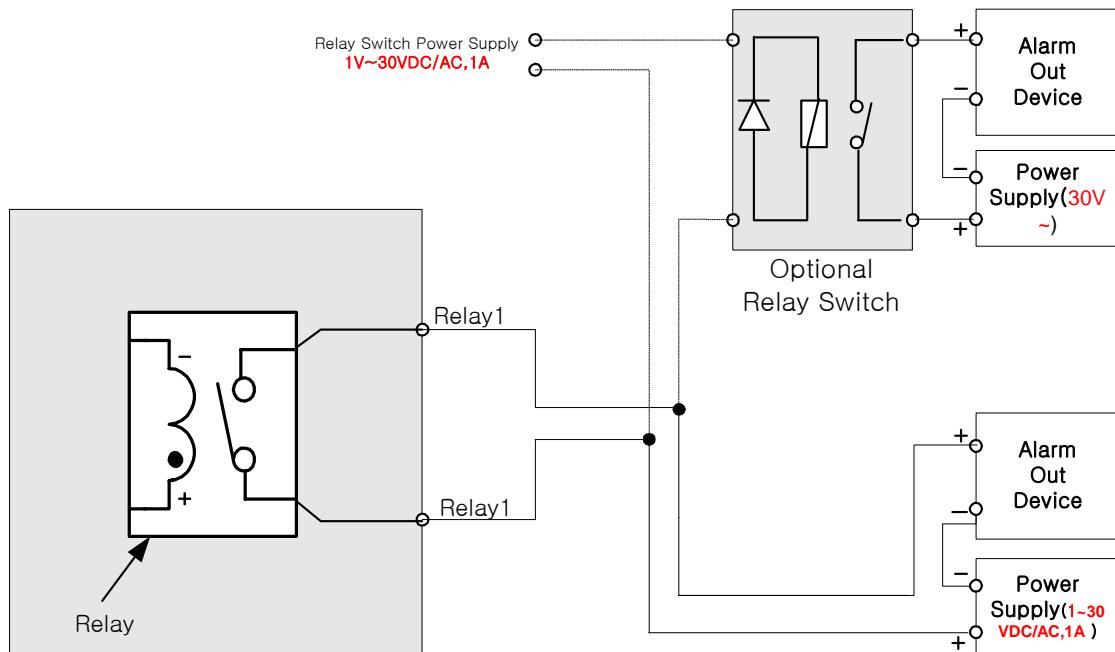
Figure 6-3. ALARM-OUT circuit

6.1.3. Connection of Sensor, Alarm Device

6.1.3.1 Connection of Sensor



6.1.3.2. Connection of Relay



 You can use the supported relay output to directly drive a maximum load of 30V AC/DC at 1A. By connecting additionally relay circuitry (such as optional relay switch), it can also drive heavier loads.

6.2. Trouble Shooting

6.2.1. After XNET/XNET-Wireless is successfully installed.

- **XNET/XNET-Wireless in viewing mode, neither channel name nor video is display and eventually timeout message is shown up.**

⇒ Check the power and network connection of XNET/XNET-Wireless.

To check if the network is properly operating, open the browser and try to connect to any server: **Example) <http://www.yahoo.com>**

or open the MS-DOS Prompt and type the following: **Example) ping www.yahoo.com**

Then press Enter. If you see the “Reply from ...” message it means that the network is working properly.

To check if the XNET/XNET-Wireless is connected, open the MS-DOS Prompt and type the following.

ping [the IP of the server]

Example) ping 192.168.1.112

If you see the “Reply from ...” message, it means that the server is properly connected.

If you do not see a Reply message, check if the network cable and power cable are properly connected.

6.2.2. After Successfully Connecting to the XNET/XNET-Wireless

- **Video movement is slow.**

⇒ In Basic Setup of Admin Mode, lower the “Quality”. High quality means more data. You can also set the “Max. upload rate” to higher value. But this value must be lower than the maximum upload speed of your network. For example, if the maximum uploading bandwidth of the network is 400Kbps, set the total “Max. upload rate” as 384Kbps. If you set it higher, the video image can be corrupted with artifacts.

Ask your network manager or ISP for maximum uploading bandwidth of the network.

- **The image is dull and I see green, pink dots.**

⇒ This could be caused by performance limitation of the PC. Do not run too many programs while running viewer program. The other reason could be missing data while transmission from XNET/XNET-Wireless.

- **Mosaic phenomenon.**

Mosaic phenomenon occurs when not enough network bandwidth is available considering the resolution and frame rate of the video.

Example is 704x480 video with low Max. upload rate.

Users are recommended to adjust resolution and frame rates to lower values for lower bandwidth network.

6.3. Web Viewer

XNET/XNET-Wireless is designed to be connected through internet explorer, too. For connection to XNET/XNET-Wireless using internet explorer type in IP address or host address in the address input field of the internet explorer.

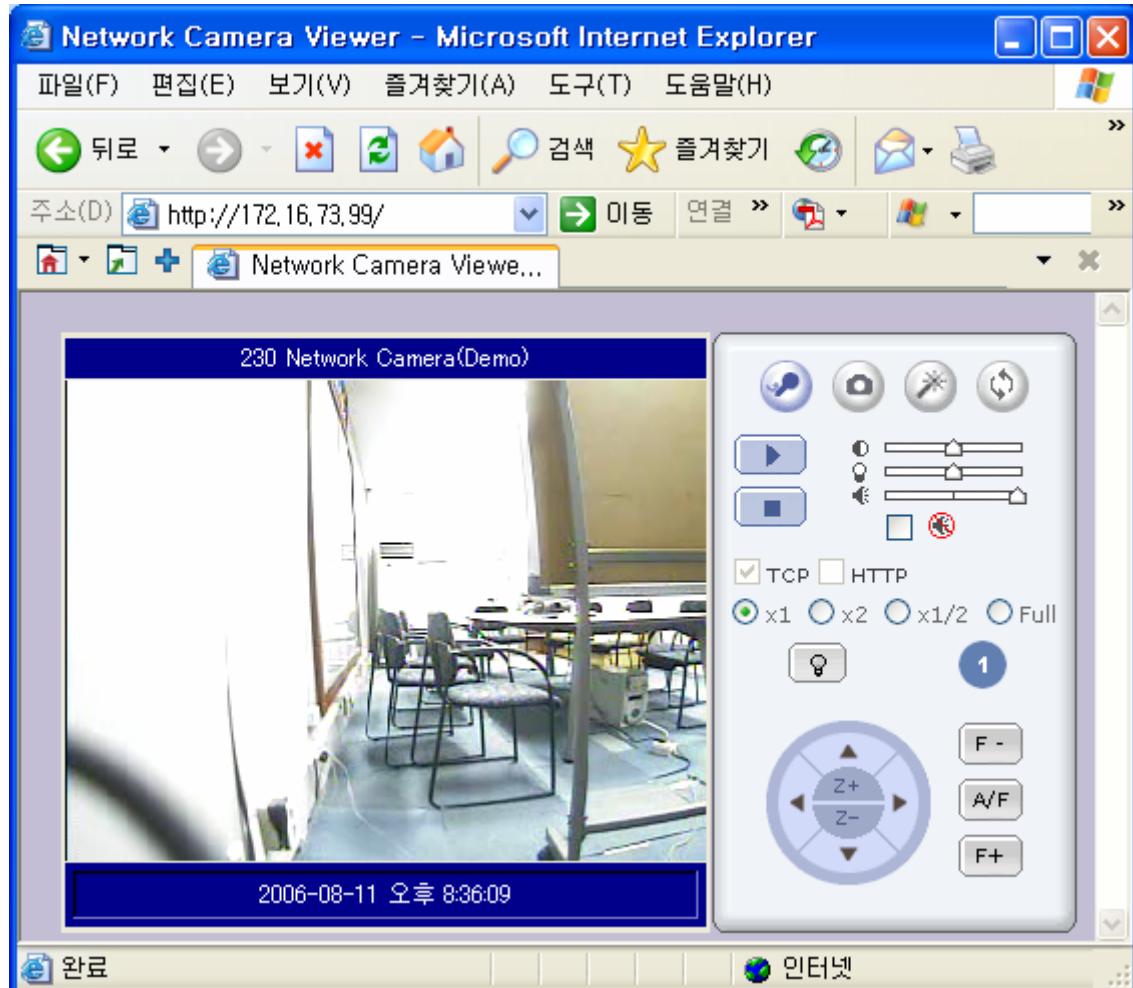
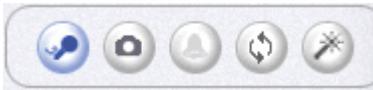
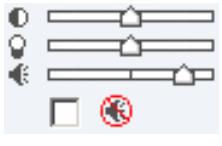
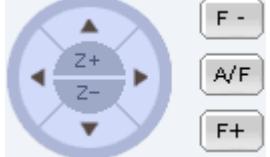


Figure 6-4. Web Viewer of XNET/XNET-Wireless

● Control Panel of Web Viewer

		Enable bidirectional audio. When bidirectional audio is enabled, voice from your PC is delivered to XNET/XNET-Wireless.
		Capture and store the still image on your desk top screen.
		Connect to XNET/XNET-Wireless in administrative mode of XNET/XNET-Wireless.
		Rotate the screen by 180 degree.
		Connect to XNET/XNET-Wireless.
		Stop the connection.
		Contrast, Brightness, and Volume adjustment..
		Check the box to mute the audio.
<input checked="" type="radio"/> x1 <input type="radio"/> x2 <input type="radio"/> x1/2 <input type="radio"/> Full		Adjust the size of the screen. Normal (x1), Twice (x2), Half (1/2), Full Screen (full)
		On/off the relay by pressing the button
		Shows the status of the sensor. Blue color means that the sensor is in normal state, while red color indicates alarm situation. Number on the button indicates the number of sensor.
		Move the center of the camera in up/down/left/right directions.
		Not applicable for XNET/XNET-Wireless.
		
		
		

6.4. How to Upgrade the XNET/XNET-Wireless

Unless otherwise instructed, the owners of the XNET/XNET-Wireless are recommended to upgrade the system when upgraded firmware is released using manual upgrade procedure. (The automatic upgrade mode will supported soon later.)

Followings are the procedure to apply for the automatic upgrade

- 1) Save the upgrade system software to your PC. Upgrade software can be downloaded from cnbtec's home page or provided in CD.
- 2) Log on to administrative mode and select "Update & Reset" menu.
- 3) Click "Browse..." to find the files you want to use for upgrade. This will open a "Choose file" dialogue window. The file extension is "ief".
- 4) When you've found the file, click "Open." This will select the file and close the "Choose file" dialogue window.
- 5) Click the "INSTALL" button. An alert message box will pop up. Click "OK" button then it will start uploading the file. This may take some time.
- 6) Upgrade completion message will appear after the system upgrade has been completed.
- 7) Reboot XNET/XNET-Wireless by performing "System Reset".
- 8) After rebooting, log on to the server in administrative mode again and click the "Status Report".
- 9) Check the version number and release date of the XNET/XNET-Wireless.



You can download the XNET system software from
CNBTEC's homepage. <http://www.cnbtec.com>